

REMARKS

Applicants have now had an opportunity to carefully consider the comments set forth in the Office Action of April 2, 2007.

Reconsideration of the Application is requested.

The Office Action

Claims 25-27 and 29-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,465,307 issued to Azumaya et al. (Azumaya) in view of U.S. Patent No. 5,978,791 issued to Farber et al. (Farber) and U.S. Patent No. 5,912,672 issued to Liguori.

Claim 28 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Azumaya in view of Farber and Liguori as applied to claim 25, and further in view of U.S. Patent No. 5,790,133 issued to Holcomb et al. (Holcomb).

Claims 36-40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Azumaya in view of Liguori.

Claim 41 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Azumaya in view of Liguori and U.S. Patent No. 5,864,408 issued to Kumashiro.

Claims 42-43 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Azumaya in view of Farber, Liguori and Kumashiro.

The Withdrawn §101 Rejections

Applicants wish to express their appreciation and thank the Examiner for withdrawal of the 35 U.S.C. §101 rejections for remaining claims 25-43.

The Art Rejections

Independent Claim 25 Patentable over Azumaya in View of Farber and Liguori

With reference to independent claim 25 of the present application, the Office Action indicates that Azumaya in view of Farber discloses all of the limitations of claim 25, except that Azumaya in view of Farber does not disclose expressly automatically determining window regions in the image without user assistance by performing said first-pass processing and that said second line segment overlaps a position of said first line segment along said first axis. The Office Action then asserts that Liguori discloses automatically determining window regions in the image without

user assistance by performing first-pass processing (with reference to Figure 2 and col. 4, lines 6-14). The Office Action further asserts that Liguori discloses a second image segment that overlaps a first image segment along a first axis (with reference to Figure 6 and col. 4, lines 44-56). The Office Action still further asserts that Azumaya in view of Farber is combinable with Liguori because they are from the same field of endeavor, namely processing and rendering digital image data.

Applicants respectfully disagree that Azumaya in view of Farber discloses all of the limitations of independent claim 25, except for those mentioned with reference to Liguori above. However, Applicants also traverse the Office Action with respect to the statement that Liguori discloses automatically determining window regions in the image without user assistance by performing first-pass processing. Applicants further traverse the Office Action with reference to the statement that Liguori discloses a second image segment that overlaps a first image segment along a first axis.

With reference first to the newly cited Liguori reference, and with particular reference to Figure 2 and col. 4, lines 6-14 which the Office Action describes as disclosing automatically determining window regions in the image without user assistance by performing first-pass processing, Applicants submit that the Liguori reference does not describe or suggest determining window regions, automatically or otherwise. The Liguori reference relates to the composition of images, and it describes complex computer generated images made up of different parts. These parts generally comprise graphic object-based data that form part of the image in addition to pixel-based scanned image data which, by itself, can also be considered to be an object (col. 1, lines 7-21 and col. 3, lines 41-48). The objects 14 and 15 shown in Figure 2, to which the Office Action refers, are not automatically determined window regions or part of a process of automatically determining window regions as recited in claim 25 of the present application.

The Liguori reference describes an embodiment that operates in an environment where images are scanned on a pixel by pixel basis by a scanner and transferred to a computer system. The computer system combines predefined graphical objects, e.g., the objects 14 and 15 to which the Office Action refers, with the scanned image to produce a resultant image (col. 3, lines 41-48). These objects are not in any way derived from the scanned image, but are instead predefined objects being added, blended or superimposed onto the scanned image (col. 9, lines 13-19, col. 16, lines 3-9, col. 16, lines 18-21, col. 16, lines 22-25, col. 16, lines 45-47,

and col. 17, lines 25-31). The Examiner has not shown where the Liguori reference determines window regions in the scanned image, either automatically as recited in claim 25 of the present application, or manually for that matter. Even if the graphical objects described in the Liguori reference could somehow be interpreted to be window regions as opposed to predefined graphical objects, the Examiner has not shown where their placement in the final image is automatically determined as opposed to being placed in appropriate positions by a user of the system.

The Office Action further asserts that the Liguori reference discloses a second image segment that overlaps a first image segment along a first axis, with reference to Figure 6 and col. 4, lines 44-56. The objects referred to (30, 31 and 32) are however on different levels in a multi-level image arrangement as described in the cited section. As described, object 30 is on a level below object 32 which is in turn on a level below object 31. These objects clearly overlap in two dimensions. The image being processed in the present application, however, is a single image, which is obviously on a single level, where line segments cannot overlap in two dimensions. In fact, the recited limitation in claim 25 of the present application clearly excludes the possibility of overlapping in two dimensions. The limitation in question reads “determining a second segment tag for a second line segment of the plurality of line segments of the image content on a second line parallel and proximate to said first line when said second line segment overlaps a position of said first line segment along said first axis.” Note that the second line segment is recited as parallel and proximate to the first line. The recited word “parallel” specifies that the line segments are extending in the same direction, everywhere equidistant, and not meeting. The recited word proximate specifies that the second line segment immediately precedes or, as in the recited limitation, immediately follows the first line. The line segments, as recited, clearly cannot overlap in two dimensions as the objects on the Liguori reference. Nor are the objects in the Liguori reference described as parallel and proximate, particularly with reference to the scanned image.

The Office Action still further asserts that Azumaya in view of Farber is combinable with Liguori because they are from the same field of endeavor, namely processing and rendering digital image data. Applicants respectfully disagree with the Examiner. In addition to the Liguori reference not disclosing the recited limitations discussed above, Applicants submit that there would be no motivation to combine the Liguori reference with either the Azumaya or the Farber reference, or

the combination of the two because neither of the cited Azumaya and Farber references or the present application process a multi-layered image. Neither do they discuss combining predefined graphical objects with a scanned image, and there would be no motivation to combine a reference directed to an object-based rendering system such as the Liguori reference that does not discuss analytical processing of the scanned image other than as a single object.

Applicants continue to disagree with rejections in the Office Action with reference to the Azumaya and Farber references as set forth in response to previous Office Actions. However, with particular reference to the Farber reference, Applicants respectfully submit that the Examiner is misinterpreting the cited section of the Farber reference. The present Office Action asserts that Farber discloses pointing to a further memory location corresponding to a first memory location content (col. 17, lines 19-23); if said first memory location content does not point to said first memory location, reading a further memory location content of said further memory location (col. 17, lines 28-30); continuing to point to succeeding memory locations until a memory location content points to its own memory location and designating said memory location as a base identifier (col. 17, lines 28-30 and 37-41); and writing said base identifier to said first memory location (col. 17, lines 41-45).

For the Examiner's convenience the above-cited section of Farber (col. 17, lines 19-45 are quoted below.

First, look in the True File registry 126 for a True File entry record 140 for the corresponding True Name (Step S292). If no such entry is found this mechanism fails. If there is already a True File ID for the entry (Step S294), this mechanism's task is complete. If there is a compressed file ID for the entry (Step S296), decompress the file corresponding to the file ID (Step S298) and store the decompressed file ID in the entry (Step S300). This mechanism is then complete.

If there is no True File ID for the entry (Step S294) and there is no compressed file ID for the entry (Step S296), then continue searching for the requested file. At this time it may be necessary to notify the user that the system is searching for the requested file.

If there are one or more source IDs, then select an order in which to attempt to realize the source ID (Step S304). The order may be based on optimizations involving general availability of the source, access time, bandwidth, and transmission cost. For each source in the order chosen, realize the True File from the source location (using the Realize True File from Location primitive mechanism), until the True File is realized (Step S306). If it is realized, continue with step S294. If no known

source can realize the True File, use the Locate Remote File primitive mechanism to attempt to find the True File (Step S308). If this succeeds, realize the True File from the identified source location and continue with step S296.

Applicants submit that the above cited section of the Farber reference, and indeed the entire Farber reference, nowhere discloses or suggests examining a memory location content to see if it points to its own memory location. The Farber reference first looks "for a True File entry record 140 for the corresponding True Name." It then determines "If there is a compressed file ID for the entry." Next, it discloses a step to "continue searching for the requested file." The remaining paragraphs describe continued searching for the requested file if there is no True File ID for the entry and there is no compressed file ID for the entry. Applicants respectfully submit that the Examiner has not shown where, in the Farber reference, a step is disclosed which teaches or suggests searching for a memory location with content pointing to its own memory location as recited in claim 25 of the present application. The Farber reference, as described following the discussion of steps S294 and S296 is simply searching for a requested file. Claim 25, however, as recited in the claim, is searching for a memory location content that points to itself (its own memory location), a procedure that the Examiner has not shown in the Farber reference.

In view of the above arguments, however, Applicants have amended claim 25 herein to more clearly recite limitations for a base identifier search and when the base identifier search is performed. Claim 25, as amended, recites limitations for: reading a past memory location of the equivalence table, reading a present memory location having a matching segment tag but differing identifier, and searching for a base identifier. The step of searching for a base identifier recites limitations similar to the above-discussed limitations regarding searching for a memory location pointing to its own memory location. Claim 25 has been further amended to recite a limitation describing the line by line basis on which the image is being processed for an image organized into parallel lines of content.

Still further, with reference to the Azumaya reference, the Office Action argues as in past Office Actions, that Azumaya, with reference to col. 14, lines 21-25, discloses the steps recited in claim 25 for "determining a second segment tag..." and "if said first segment tag equals said second segment tag, writing said first identifier to a second memory location." However, in doing this, the Office Action omitted

discussing the wherein clause "wherein said second line segment overlaps a position of said first line segment along said first axis." The Office Action depended on the above-discussed Liguori reference in an attempt to show a teaching of the wherein clause. The wherein clause is, however, an important conditional feature of the determining step. Even if the Liguori reference described objects overlapping in the same manner as recited in the claim (which it doesn't based on the discussion above), the Liguori reference doesn't describe the necessary conditional element to provide the results described in the present application for which the subject limitations are recited in the claim. The subject "wherein" clause of claim 25 has been changed by amendment herein to read "when" to further clarify the conditional nature of the subject limitation.

For example, Figure 4 of the present application shows an example of proximate line segments overlapping along the recited first axis. In particular, line segment K overlaps line segment F, and line segment L overlaps line segment I. With reference now to Figure 14, exemplary results based on Figure 4 and the recited limitations are shown. The Examiner will notice that the Line Segment ID for segment F (see "2", numeral 204) has been written to a second memory location corresponding to line segment K (see "2", numeral 206). Similarly, the Line Segment ID for segment I (see "5", numeral 216) has been written to a second memory location corresponding to line segment L (see "5", numeral 210). In the remaining case for segment J, a second identifier (Line Segment ID "7", numeral 202) has been written to the second memory location because, although overlapping segment F, the segment tags did not match (Non White versus White). This processing, according to the recited limitation, only takes place for proximate line segments overlapping in one axis. The combination of Liguori with Azumaya does not teach or suggest similar processing.

For the reasons set forth above, Applicants respectfully submit that independent claim 25, as amended, and claims 26-29 and 42 depending therefrom are patentably distinct over the cited references and are in condition for allowance.

Independent Claim 30 Patentable over Azumaya in View of Farber and Liguori

With reference to independent claim 30 of the present application, the Office Action indicates that Azumaya in view of Farber discloses all of the limitations of

claim 30, except that Azumaya in view of Farber does not disclose expressly automatically determining window regions in the image without user assistance by performing said first-pass processing and that said second line segment overlaps a position of said first line segment along said first axis. The Office Action then asserts that Liguori discloses automatically determining window regions in the image without user assistance by performing first-pass processing (with reference to Figure 2 and col. 4, lines 6-14). The Office Action further asserts that Liguori discloses a second image segment that overlaps a first image segment along a first axis (with reference to Figure 6 and col. 4, lines 44-56). The Office Action still further asserts that Azumaya in view of Farber is combinable with Liguori because they are from the same field of endeavor, namely processing and rendering digital image data.

The Liguori reference was discussed above with reference to independent claim 25 with for essentially the same reasons. Therefore, Applicants respectfully traverse the Office Action with respect to the statements that Liguori discloses automatically determining window regions in the image without user assistance by performing first-pass processing and that Liguori discloses that a second image segment that overlaps a first image segment along a first axis for the same reasons set forth with reference to claim 25 above. Applicants further submit that there would be no motivation to combine the Liguori reference with either the Azumaya or the Farber reference, or the combination of the two for the same reasons set forth above with reference to claim 25.

Applicants continue to disagree with rejections in the Office Action with reference to the Azumaya and Farber references as set forth in response to previous Office Actions. Still further however, with reference to the Azumaya reference, the Office Action argues as in past Office Actions, that Farber discloses the steps recited in claim 30 for "comparing said first identifier to said second identifier, determining a first segment tag for said first line segment, determining that said first line segment is eligible for a base identifier search if said first identifier does not equal said second identifier and conducting a base identifier search for said first line segment." With reference to these steps, the Office Action depended on the above-discussed Liguori reference in an attempt to show a teaching of the wherein clause which recites "wherein said first line and said second line are parallel to a first axis and said first line segment overlaps said second line segment." The wherein clause is similar to that in claim 25 and is an important conditional feature of the above-quoted steps of

claim 30. Even if the Liguori reference described objects overlapping in the same manner as recited in the claim, the Liguori reference doesn't describe the necessary conditional element to provide the particular processing described in the present application for which the subject limitations are recited in the claim such as, e.g., the base identifier search.

Claim 30 has, however, been amended herein to recite the line by line basis of the processing and to further recite limitations defining the conditions under which the base identifier search is performed, i.e., when the first and second segment tags are equal and the first and second line segments are neighboring line segments. Applicants respectfully submit that the combination of Azumaya, Farber and Liguori do not teach or suggest the subject limitations, as amended.

For the reasons set forth above, Applicants respectfully submit that independent claim 30, as amended, and claims 31-35 and 43, depending therefrom are patentably distinct over the cited references and are in condition for allowance.

Independent Claim 36 Patentable over Azumaya in View of Liguori

In rejecting claim 36, the Office Action asserts as it did with reference to claim 25 that Liguori discloses automatically determining window regions in the image without user assistance by performing first-pass processing (with reference to Figure 2 and col. 4, lines 6-14). The Office Action also asserts again that Azumaya in view of Farber is combinable with Liguori because they are from the same field of endeavor, namely processing and rendering digital image data. Applicants respectfully traverse the Office Action with respect to the statement that Liguori discloses automatically determining window regions in the image without user assistance by performing first-pass processing. A discussion of the Liguori reference as it applies to the rejection of claim 36 is similar to the discussion with reference to claim 25. Pertinent aspects of that discussion are repeated in the following three paragraphs for the Examiner's convenience.

With particular reference to Figure 2 and col. 4, lines 6-14 which the Office Action describes as disclosing automatically determining window regions in the image without user assistance by performing first-pass processing, Applicants submit that the Liguori reference does not describe or suggest determining window regions, automatically or otherwise. The Liguori reference relates to the composition

of images, and it describes complex computer generated images made up of different parts. These parts generally comprise graphic object-based data that form part of the image in addition to pixel-based scanned image data which, by itself, can also be considered to be an object (col. 1, lines 7-21 and col. 3, lines 41-48). The objects 14 and 15 shown in Figure 2, to which the Office Action refers, are not automatically determined window regions or part of a process of automatically determining window regions as recited in claim 36 of the present application.

The Liguori references describes an embodiment that operates in an environment where images are scanned on a pixel by pixel basis by a scanner and transferred to a computer system. The computer system combines predefined graphical objects, e.g., the objects 14 and 15 to which the Office Action refers, with the scanned image to produce a resultant image (col. 3, lines 41-48). These objects are not in any way derived from the scanned image, but are instead predefined objects being added, blended or superimposed onto the scanned image (col. 9, lines 13-19, col. 16, lines 3-9, col. 16, lines 18-21, col. 16, lines 22-25, col. 16, lines 45-47, and col. 17, lines 25-31). The Examiner has not shown where the Liguori reference determines window regions in the scanned image, either automatically as recited in claim 36 of the present application, or manually for that matter. Even if the graphical objects described in the Liguori reference could somehow be interpreted to be window regions as opposed to predefined graphical objects, the Examiner has not shown where their placement in the final image is automatically determined as opposed to being placed in appropriate positions by a user of the system.

The Office Action further asserts that Azumaya is combinable with Liguori because they are from the same field of endeavor, namely processing and rendering digital image data. Applicants respectfully disagree with the Examiner. In addition to the Liguori reference not disclosing the recited limitations discussed above, Applicants submit that there would be no motivation to combine the Liguori reference with the Azumaya reference because neither the cited Azumaya reference nor the present application process a multi-layered image. Neither do they discuss combining predefined graphical objects with a scanned image, and there would be no motivation to combine a reference directed to an object based rendering system such as the Liguori reference that does not discuss analytical processing of the scanned image other than as a single object.

The Office Action cites Figure 21 (c), Figure 27 (a), and col. 16, lines 34-40 of

Azumaya with reference to the recited limitation of claim 36 which states "reviewing line segments of said second row and said first row to associate line segments of said second row neighboring line segments of said first row and having common pixel tags." Applicants respectfully submit that the Examiner has failed to show where the Azumaya reference teaches or suggests detecting pixels that form a line segment in a row. The underlined portion of the limitation quoted from claim 36 is described, for example, in Figure 4 of the present application. An example of neighboring line segments is shown. In particular, line segment K is a line segment neighboring line segment F, and line segment L is a line segment neighboring line segment I. Figure 14, as described above with reference to claim 25 shows the association of line segment K to line segment F, and segment L to segment I. This association, according to the recited limitation, only takes place for neighboring line segments.

The discussions in Azumaya with reference to lines, as discussed in a response mailed August 15, 2006 to a previous Office Action, appear to be referring either to scan lines of a document or to the effect a line has when crossing a marker, rather than to a detected line segment portion of the document. For example, Azumaya describes the embodiment as employing a line sequential process using the line image sensor (col. 15, lines 42-45). Azumaya describes a line memory in column 12, line 41 and an n-line memory in column 12, lines 58-59; however, Azumaya does not describe these line memories as memory for storing line segments of the image, but instead apparently uses these memories for storing full scan lines of the image in the main scan direction. The remaining discussions of image line segments in Azumaya appear to be with reference to Figures 28, 29 and 33-36. However, the relevant descriptions in Azumaya indicate that the exemplary lines shown are only for explaining the affects of a line crossing a marker portion. For example, with reference to Figures 28 and 29, the crossing portions are detected using the pixel patterns rather than the line segments shown (col. 18, lines 22-38). Again, for example, the discussion on column 25, line 21 through column 31, line 56 indicates that the exemplary lines are shown in Figures 33-36 only for explaining the affects of a line (701) crossing a marker portion (702). The discussion in Azumaya makes no mention of detecting the line segments 701, but rather only shows that the system correctly assigns area flags for portions of the image within the marker 702 and outside the marker 702.

However, as with claims 25 and 30, Applicants have amended claim 36 herein to further clarify recited limitations. A limitation has been added reciting that the steps of determining a pixel tag, determining a pixel identifier, and forming line segments are performed for each row of the image. The recited step of reviewing has also been amended to recited that neighboring line segments are associated when the neighboring line segments have common pixel tags but differing pixel identifiers, by associating the differing pixel identifiers. Applicants respectfully submit that the combination of Azumaya, Farber and Liguori do not teach or suggest the subject limitations, as amended.

For the reasons set forth above, Applicants respectfully submit that independent claim 36, as amended, and claims 36-41 depending therefrom are patentably distinct over the cited references and are in condition for allowance.

CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 25-43) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

No additional fee is believed to be required for this Amendment E. However, the undersigned attorney of record hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Deposit Account No. 24-0037.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Mark Svat, at Telephone Number (216) 861-5582.

Respectfully submitted,

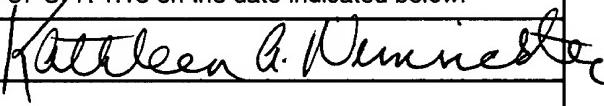
FAY, SHARPE, FAGAN,
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July 2, 2007

Date



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